

We Claim:

1. A half-bridge circuit, comprising:

^{CH1} a first semiconductor body having a first MOS transistor that ^N is integrated in said first semiconductor body, said first MOS transistor being a vertically designed n-conducting MOS transistor;

^{CH2} a second semiconductor body having a second MOS transistor ^P that is integrated in said second semiconductor body, said second MOS transistor being a vertically designed p-conducting MOS transistor;

¹⁰ a drive circuit for driving said first MOS transistor and said second MOS transistor;

²⁰ a common connection plate to which said first MOS transistor and said second MOS transistor are applied; and

^{K1} a first connection terminal and a second connection terminal ^{K2};

^N said first MOS transistor and said second MOS transistor being ^P connected in series between said first connection terminal and said second connection terminal.

2. The half-bridge circuit according to claim 1, wherein:

said first semiconductor body has a front side and a rear side;

said first MOS transistor has a drive connection and a first load path connection that are accessible at said front side of said first semiconductor body;

said first MOS transistor has a second load path connection that is accessible at said rear side of said first semiconductor body;

said second semiconductor body has a front side and a rear side;

said second MOS transistor has a drive connection and a first load path connection that are accessible at said front side of said second semiconductor body; and

said second MOS transistor has a second load path connection that is accessible at said rear side of said second semiconductor body.

3. The half-bridge circuit according to claim 1, comprising:

a capacitor connected between said first load path connection of said first transistor and said first load path connection of said second transistor.

4. The half-bridge circuit according to claim 3, wherein:

said capacitor is applied to said first semiconductor body and to second semiconductor body;

said capacitor has a first connection connected to said first semiconductor body; and

said capacitor has a second connection connected to said second semiconductor body.

5. The half-bridge circuit according to claim 4, comprising:

a bonding wire electrically connecting said first connection of said capacitor to said first semiconductor body; and

a bonding wire electrically connecting said second connection of said capacitor to said second semiconductor body.

6. The half-bridge circuit according to claim 4, comprising:

a first layer electrically connecting said first connection of said capacitor to said first semiconductor body; and

a second layer electrically connecting said second connection of said capacitor to said second semiconductor body;

said first layer and said second layer being made of a material selected from the group consisting of a soldering material and an electrically conductive adhesive.

7. The half-bridge circuit according to claim 1, comprising an electrically conductive adhesive that bonds said first semiconductor body and said second semiconductor body onto said common connection plate.

8. The half-bridge circuit according to claim 1, comprising an electrically conductive adhesive that solders said first semiconductor body and said second semiconductor body onto said common connection plate.

9. The half-bridge circuit according to claim 1, comprising:

a third semiconductor body into which said drive circuit is integrated;

said first semiconductor body having a front side; and

said third semiconductor body being applied to said front side of said first semiconductor body.

10. The half-bridge circuit according to claim 1, comprising:
a common housing surrounding said first semiconductor body,
said second semiconductor body, and said drive circuit.

11. The half-bridge circuit according to claim 1, comprising:

a capacitor;

said first transistor having a first load path connection;

said second transistor having a second load path connection;

and

said capacitor connected between said first load path
connection of said first transistor and said first load path
connection of said second transistor.

12. A switching regulator, comprising:

a half-bridge circuit, including:

a first semiconductor body having a first MOS transistor that is integrated in said first semiconductor body, said first MOS transistor being a vertically designed n-conducting MOS transistor;

a second semiconductor body having a second MOS transistor that is integrated in said second semiconductor body, said second MOS transistor being a vertically designed p-conducting MOS transistor;

a drive circuit for driving said first MOS transistor and said second MOS transistor;

a common connection plate to which said first MOS transistor and said second MOS transistor are applied;
and

a first connection terminal and a second connection terminal;

said first MOS transistor and said second MOS transistor being connected in series between said first connection terminal and said second connection terminal.